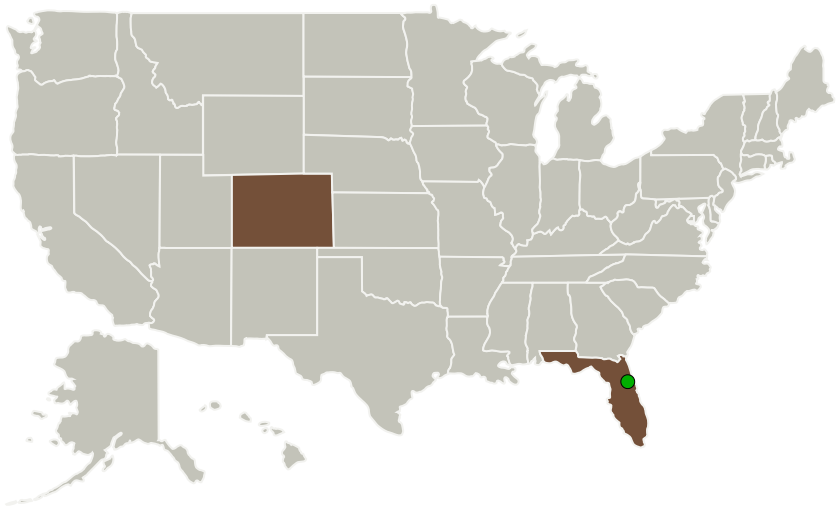
Standard Electric Interface for Payload and Launch Vehicle Enabling Secondary Rideshare, Phase I

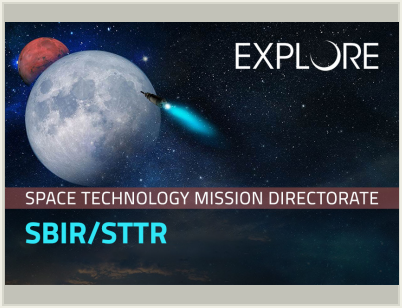
Completed Technology Project (2011 - 2011)

Project Introduction

Access to space for Small Satellites is enabled by the use of excess launch capacity. An integration process that minimizes risk to the primary, allows parallel integration and predictable cost/schedule for the secondary enables use of that capacity. Design_Net has developed and flown a Falcon 1 RideShare Adapter (RSA) and is developing a RSA for the Minotaur IV, EELVs and Falcon 9. An RSA is more than structure, it must have electronics to provide a single simple interface to the launch vehicle (constant from mission to mission), yet provide a standard set of services to Payloads. DNet has leveraged work on the Falcon RSA, work on advanced AFRL Plug and Play avionics and commercial investments to develop a modular Secondary Payload Support Unit (SPSU). SPSU provides deployment, power distribution, and telemetry services for secondaries. We propose building on that work by adding video capability to verify and evaluate payload deployment. During Phase 1 we develop the video to PDR level (Begin TRL 3; End TRL 4) and during Phase 2 carry development of that module coupled with the rest of the SPSU (currently at TRL 6) to TRL 8 and have a system ready for flight in 2012 timeframe.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Design_Net Engineering LLC	Lead Organization	Industry	Golden, Colorado
Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

Primary U.S. Work Locations	
Colorado	Florida

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139587)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Design_Net Engineering LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

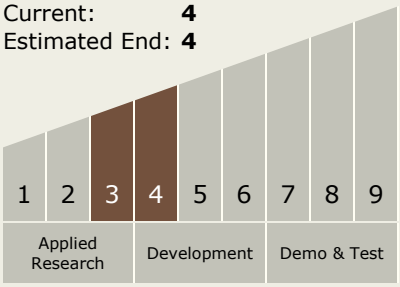
Carlos Torrez

Principal Investigator:

Gerry Murphy

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.2 Launch Vehicle Propellant

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System